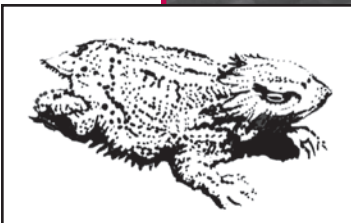
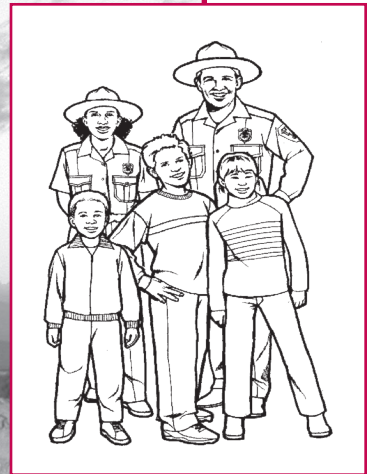
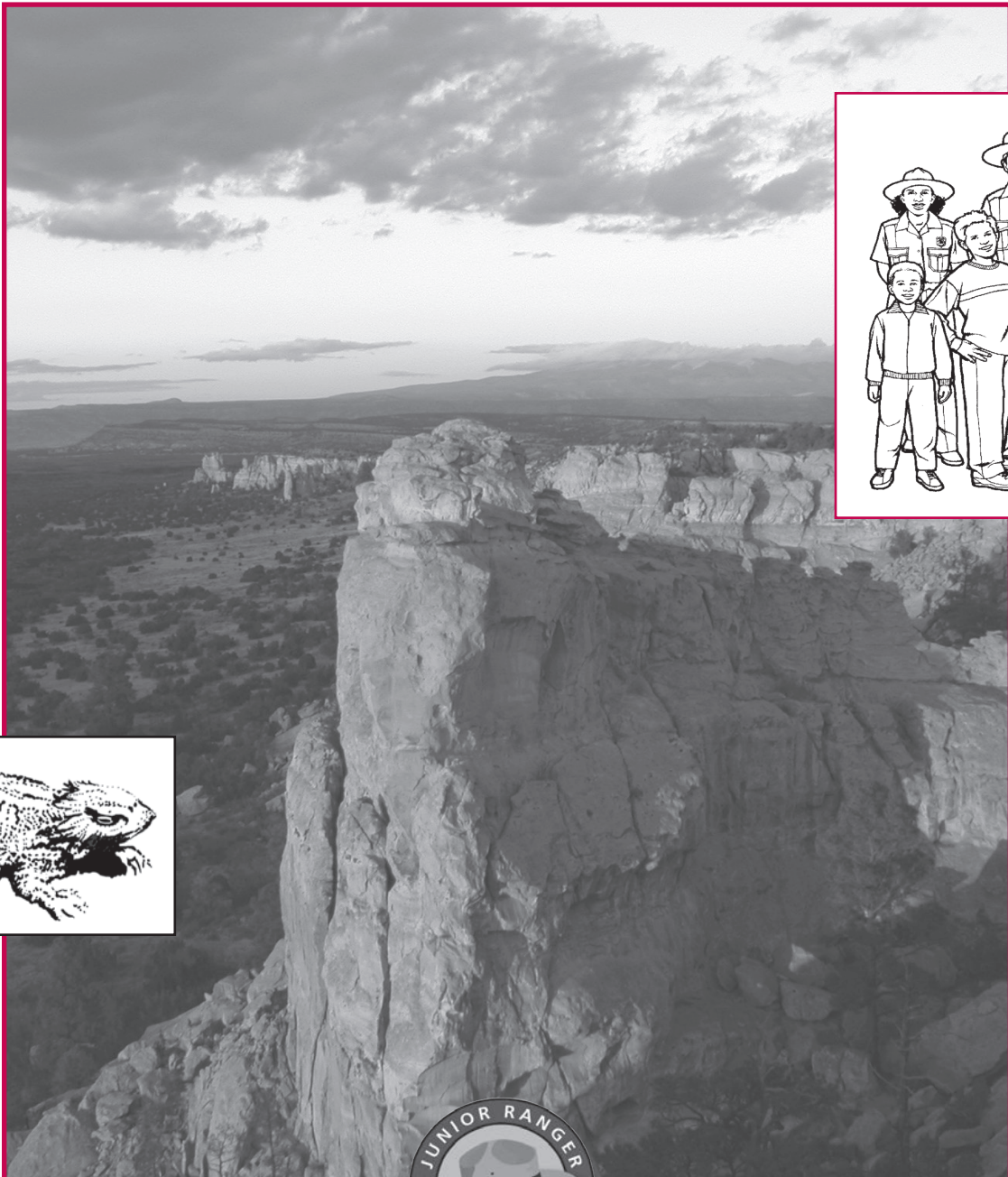


El Malpais

National Monument
and National Conservation Area



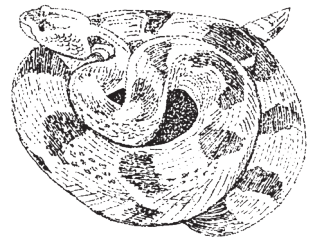
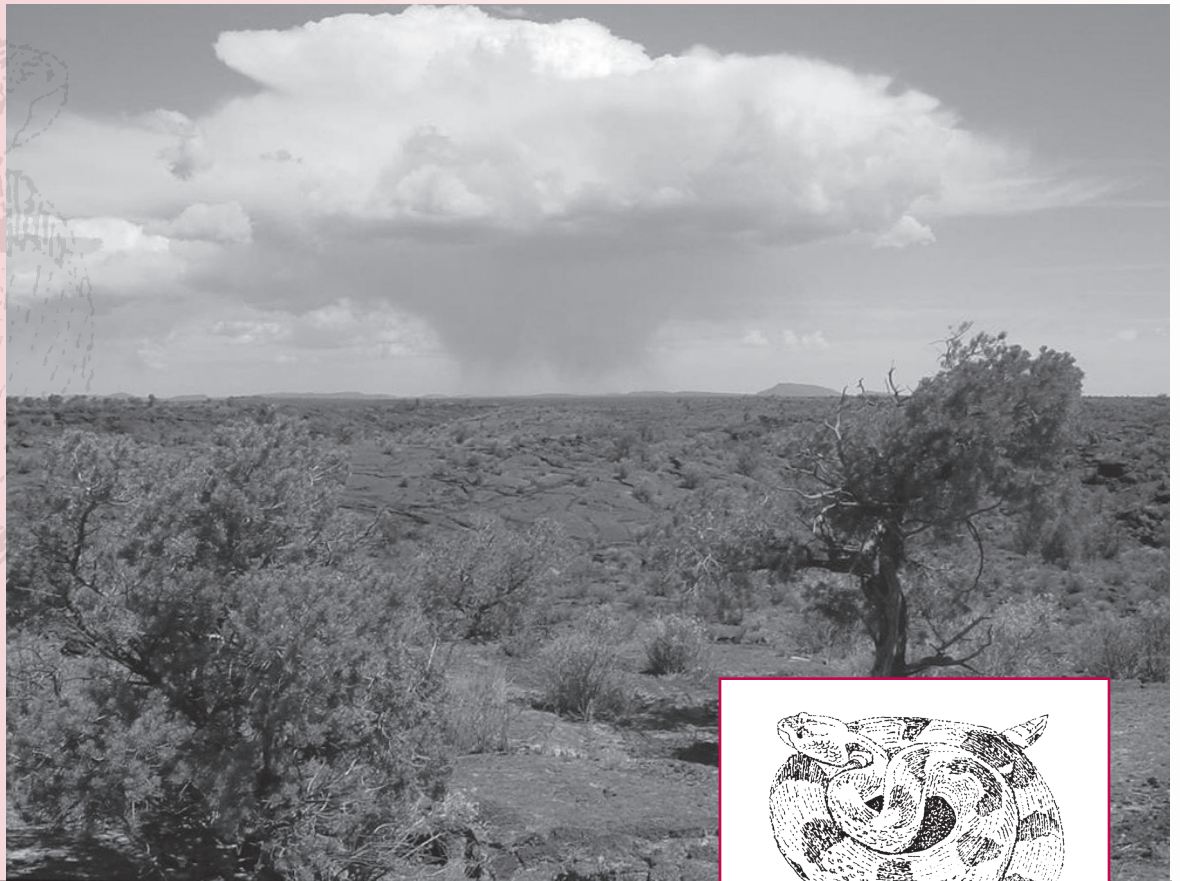


You'll find our national parks all across the United States, from the cold coast of Alaska to the swampy tip of Florida. Many parks offer visitors the chance to become a Junior Ranger. With the program, you'll discover each park's wild beauty and colorful human history. You'll even receive a special badge or pin. The more parks you visit, the more Junior Ranger badges and pins you can collect.

So get out your walking shoes, your water bottle, and your sun hat...it's time to go exploring!

Use this Guide to Explore

- El Malpais National Monument, National Park Service
- El Malpais National Conservation Area, Bureau of Land Management
- Cibola National Forest, U.S.D.A. Forest Service



Watch Your Step!

Hiking around El Malpais is lots of fun, but be sure to remember these safety tips:

- Lava Lookout
Walk carefully on the uneven surfaces created by rugged lava.
- Snake Patrol
Keep an eye out for rattlers and avoid putting your hands under rocks or in crevices.
- Eyes on the Skies
Lightning storms can come up fast. If you see a storm approaching, head back to your car.

Discovering El Malpais

Jagged rocks. Cool caves. Volcanic craters. El Malpais is filled with these and other fascinating, sometimes rugged, features.

Back when the Spanish first came to this area, it was difficult for them to cross the lava because the rough rock was too hard on their horses' hooves. So they named the lava fields "El Malpais," meaning "bad lands." Start exploring the area and you'll be truly dazzled by all the good things



this place has to offer: scenic hikes, ancient rock art, wondrous wildlife, stunning vistas, and much more.

How to Become a Junior Ranger

Try doing at least six of the activities in this book. You can work alone, with friends, or with your family. Then bring your guide to a ranger at one of the visitor centers listed later in the book. Or mail it to the address below. That way, you can earn your own El Malpais Junior Ranger badge!

Mail completed guide to:
Northwest New Mexico Visitor Center
1900 E. Santa Fe Avenue
Grants, NM 87020



Be a good steward!

You can start being a Junior Ranger right away by helping to take care of your public lands. Here are some ideas:

- Be sure to pack out everything you bring in—food waste, trash, and so on.
- Stay on the trails and designated routes. Desert soils are delicate, especially dark lumpy patches called biological soil crusts, which can take 250 years to recover from trampling!
- Be extra careful in the lava tube caves and other delicate environments. Even a few dropped food crumbs can begin to disrupt the natural food chain.
- Remember not to touch pictographs and petroglyphs. Oils in your skin can speed their disappearance.
- Do not climb on ancient structures and be sure to leave stones, pottery sherds, and other artifacts where you find them. Have your camera? Take a photo to remember them!
- Enjoy this beautiful place and tell others about it!

THE CONTINENTAL DIVIDE

The Continental Divide

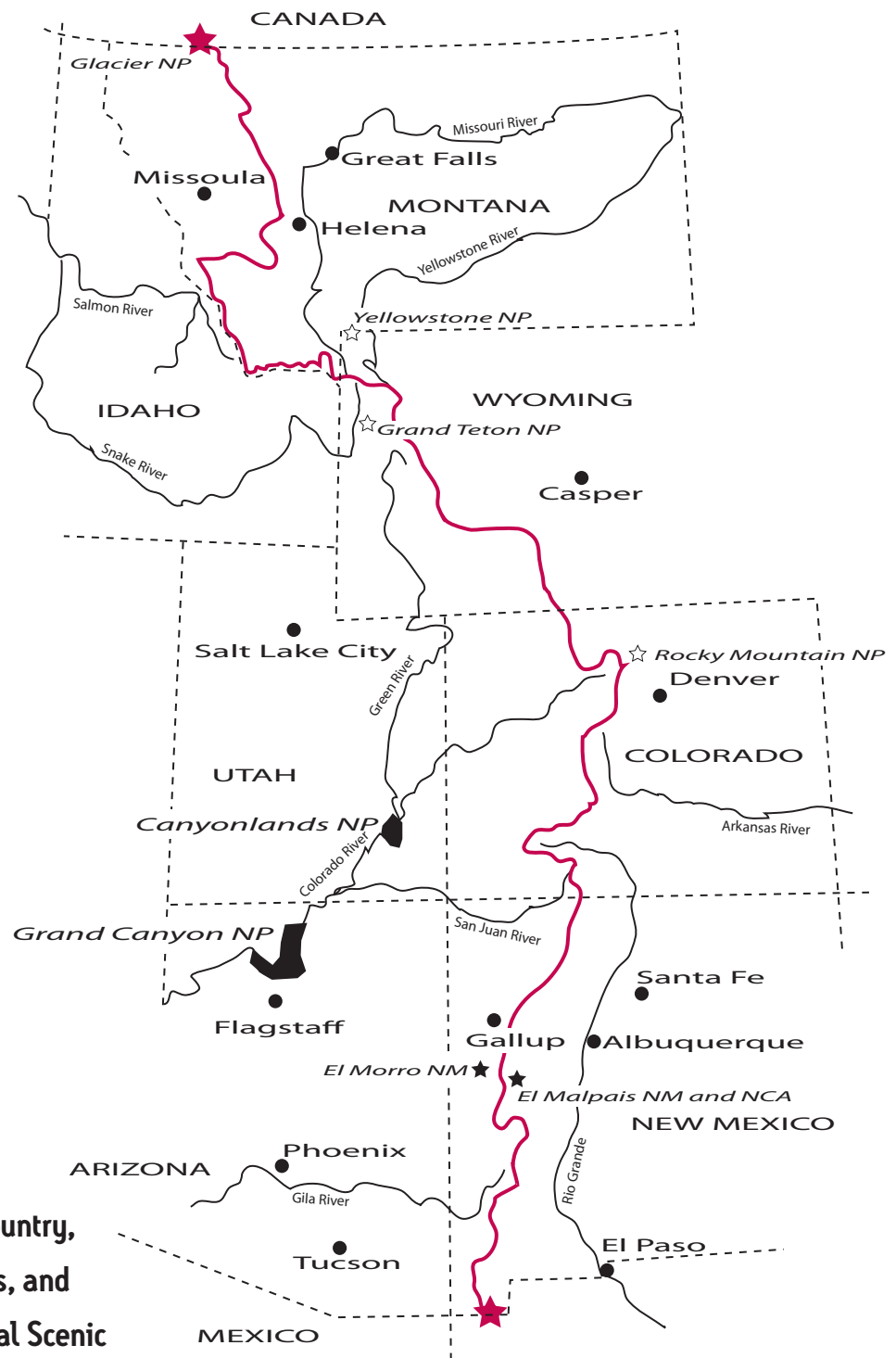
is a line (marked on maps, not the ground!) that separates the major western and eastern drainages of the United States. Water—rain, snow, or even hail—that falls on the western portion eventually flows downstream to the Pacific Ocean. Water that falls on the eastern portion drains into the Atlantic Ocean. Because the Continental Divide is often high, it is a “weather-maker.” Clouds coming from the west often drop their rain as they hit the peaks, so that it is usually wetter west of the Divide than to the east. But winds tend to be stronger on the eastern slope, contributing to a different environment for plants, animals, and people.

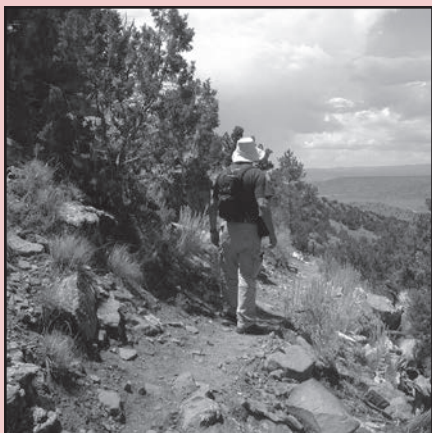
The Continental Divide National Scenic Trail

roughly follows the Continental Divide from Canada to Mexico. Many people hike it, while others follow the route on bicycles, horses, or even motorcycles. Many highways cross the Continental Divide, too—just west of El Malpais, you can cross the Continental Divide on either Highway 53 (at 7,882 ft. above sea level) or on I-40 (at 7,268 ft. above sea level).

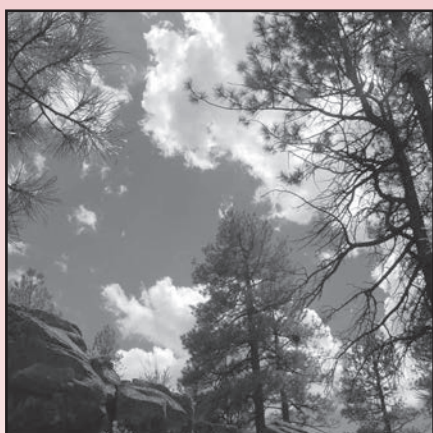
The CDT passes through beautiful country, much of it high mountains, meadows, and forests. It is designated as a National Scenic Trail. Can you name two other National Scenic Trails?

1. _____
2. _____





CDT on Mt. Taylor



CDT near El Malpais Information Center

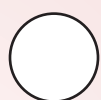


CDT near Chain of Craters

HIKING THE CDT

FIND A CDT TRAILHEAD
FOR A SHORT HIKE:

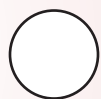
Can you draw the CDT logo here?



1

Mt. Taylor CDT trailhead

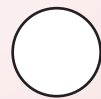
Follow Highway 547 northeast out of Grants. At the edge of town, you will enter the Cibola National Forest. Look for the sign! Almost immediately you will see the parking area for the CDT trailhead on your right. The CDT climbs up onto the mesa above Grants from here, heading north over Mount Taylor.



2

El Malpais Information Center CDT trailhead

At the El Malpais Information Center, 23 miles south of Grants on NM 53 (Exit 81 on I-40). From here you can hike the CDT east from the Information Center. It runs through ponderosa forests, lava fields, and meadows.



3

Chain of Craters CDT trailheads

The one place where the CDT actually follows the Continental Divide closely in this area is along the Chain of Craters. There are CDT trailheads at both ends of County Road 42 (the Chain of Craters Backcountry Byway). The north trailhead is located about 5.5 miles south of Highway 53, near Cerro Arizona; the south trailhead is located about 9.5 miles northwest of Highway 117, at Cerro Brillante. The trail is well defined near both trailheads but is marked only by cairns further out. It passes among the twenty-five or so craters in this area, which look like small hills. Many of them are easy to scramble up. The route is easy walking in some areas and more rugged in others, traversing meadows, lava slopes, and piñon-juniper forests. (Please note that CR 42 can be impassable when wet.)

Big Rock Bingo

As recently as 2,000 to 3,000 years ago, volcanoes shook the ground around El Malpais. Hot rock known as magma from deep inside the earth spewed out and spread across the ground. Eventually this hot rock, now called lava, cooled and hardened, forming many (but not all) of the landscape features you see today. **Use the bingo card below to help you find examples of different geologic features at El Malpais. Can you find three boxes in a row across, down, or diagonally? Answer the questions on the next page for each feature you have a chance to see. Mark the circle with a checkmark ✓ when you see it.**

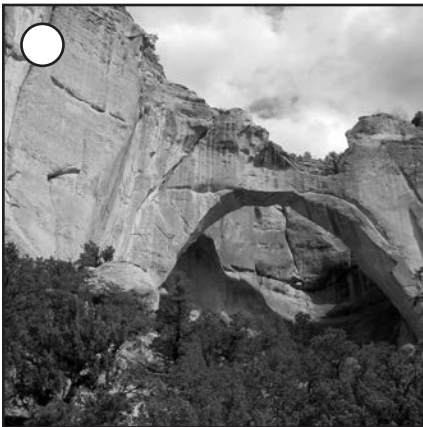
A) composite volcano



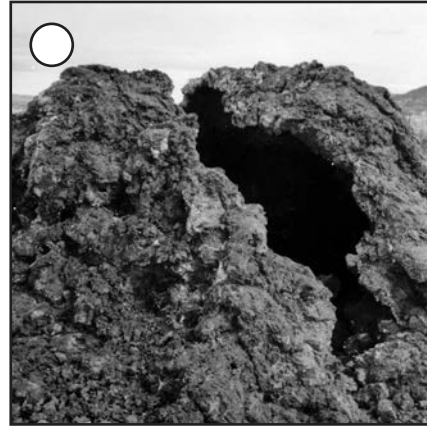
B) cinder cone



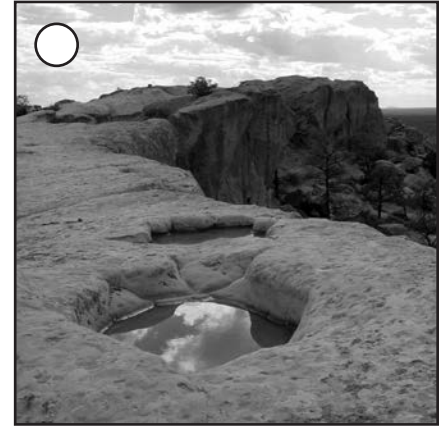
C) sandstone arch



D) spatter cone



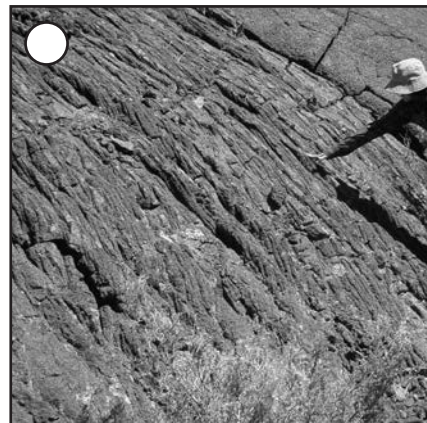
E) Sandstone Bluffs



F) The Narrows



G) pahoehoe lava flow



H) lava tube



A) Mount Taylor is an 11,301-foot composite volcano located near Grants. Built of layers of cinder, ash, and lava, **composite volcanoes** are usually highly explosive. This one blew its top 2.5–3.5 million years ago. Is there snow on Mount Taylor today?

B) A **cinder cone** is a volcano built of cinders—small pieces of cooled lava that fell around the hole from which they came. El Calderon, Bandera Crater, and the volcanoes in the Chain of Craters are good examples. How many kinds of trees do you see growing on the cinder cones of El Malpais now?

C) **Sandstone arches** such as La Ventana are not the result of volcanic activity. Instead, freezing, thawing, wind, and other processes have worn away the sandstone to form arches. How high do you think La Ventana Arch is?

D) **Spatter cones** form when lava spurts forth along fissures or cracks. Can you imagine what this looked like when it formed? Try to draw it!

E) At the **Sandstone Bluffs**, natural basins in the rock, called tinajas, collect rainwater. Who do you think uses this water?

F) **The Narrows** is the narrow place between rough lava and smooth sandstone where the highway runs today. What kinds of birds have you seen flying over these high cliffs?

G) Ropy lava formed by very fluid hot lava is called **pahoehoe [PA-HOY-HOY] lava**. What does pahoehoe lava feel like when you touch it?

H) The caves in this area are really **lava tubes**. Lava tubes formed when a river of lava erupted from a cinder cone and its outer surface hardened while the lava underneath continued to rush out. Lava tubes are cool and dark. Who might live in here?

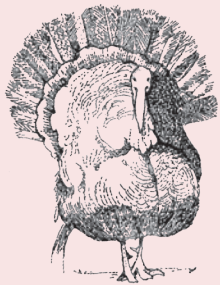
Life Zones

You'll find lots of fascinating environments across El Malpais, from forested mountain slopes to lava tube caves. Each of these habitats has the right living conditions for a different community of plants and animals. Use the diagram and descriptions to figure out which plants and animals favor which habitat. Draw a line to connect each living thing with its habitat.



Bats

If you're lucky, you might catch our nightly fly-out from our daytime cave dwellings into the night sky.

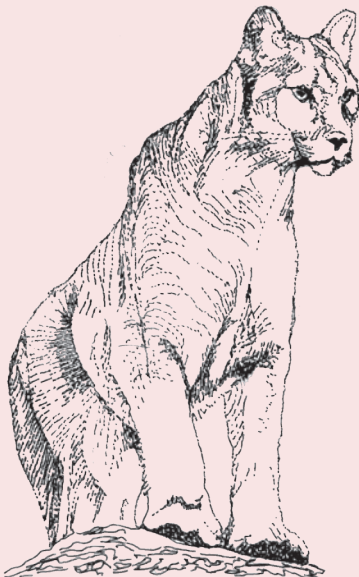


Wild Turkeys

We like to live in the forest, where we can raise our chicks among the shrubs and be hidden from predators.

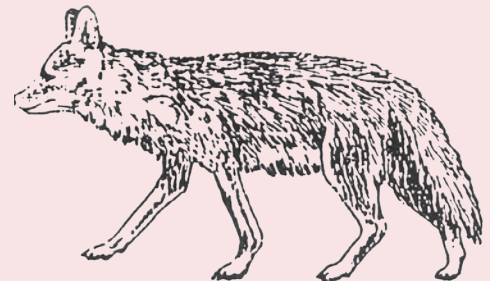
Coyotes

We go everywhere we want, which is one reason we're so common in this region.



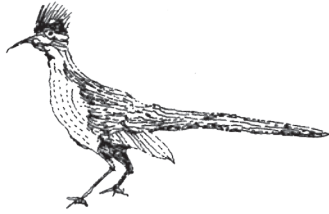
Bobcats and Mountain Lions

We roam across the forest where we can count on finding plenty of deer and other prey.



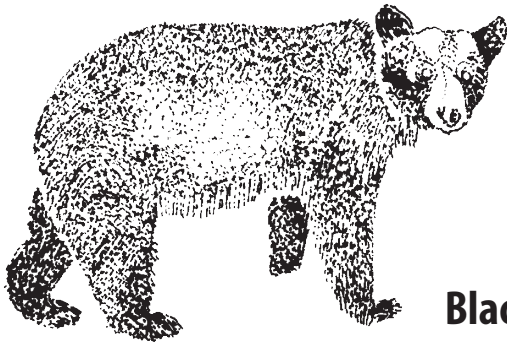
Roadrunners

We love the desert, where we can find all our favorite foods: cactus fruits, insects, lizards, tarantulas, and even rattlesnakes!



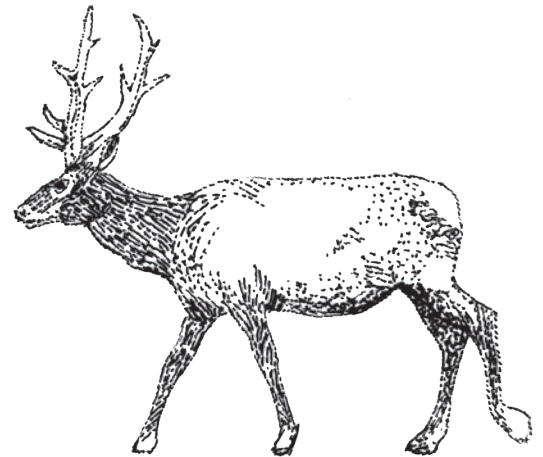
Junipers and Douglas Firs

You wouldn't think a volcano or a lava flow would be a good place for trees to grow. But once our seeds get established, we can grow for hundreds of years. That's because the rough rocks are good at storing water for us.



Black Bears

Keep an eye out for us in low- to mid-elevation areas.



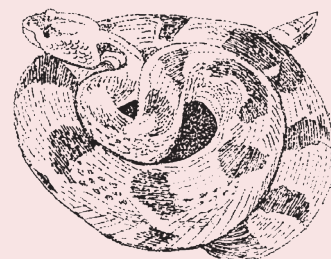
Elk and Deer

We use the forest for cover. We gather mostly in the mountains.



Rattlers and Other Snakes

You'll usually find us slithering among low- to mid-elevation rocks. Watch your step!



Water Ways

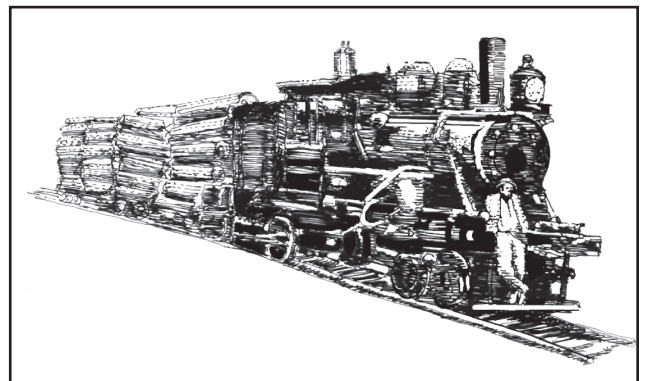
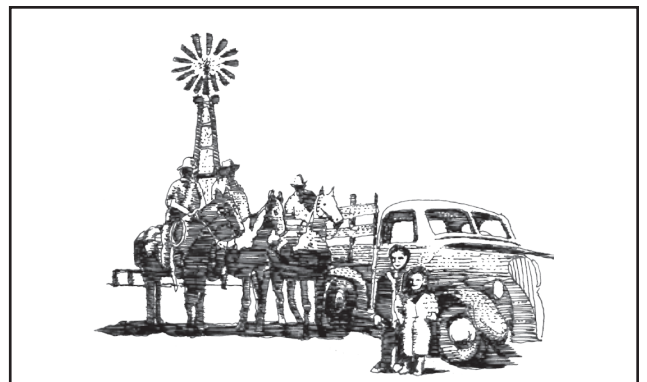
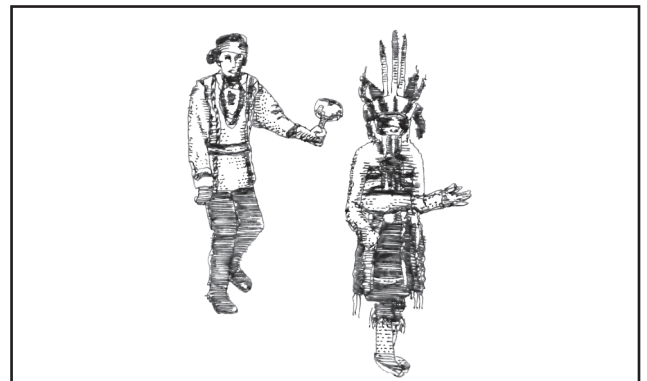
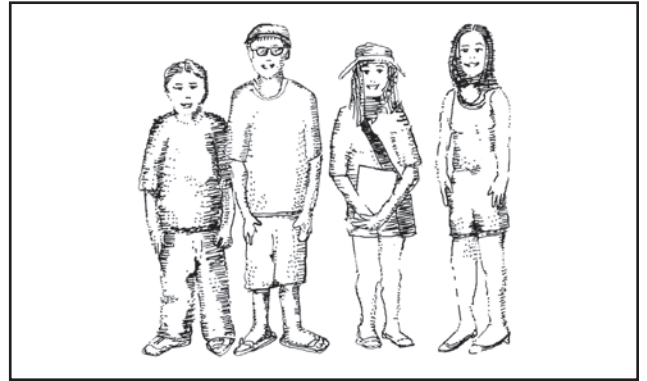
"We built many railroad camps to log the Zuni Mountains. We needed water not only for ourselves but for our steam locomotives too."

"When I hike at El Malpais with my family, we bring a water bottle for everyone so no one gets thirsty."

"Our people have lived here for thousands of years. We once got our water from where it collected in tinajas, natural depressions in the sandstone. We also developed early irrigation, digging check dams and reservoirs to store water for our crops."

"To get water for ourselves, our workers, and our livestock, we dug wells and built windmills to operate them."

El Malpais is a semi-arid desert. That means the climate is quite dry, though heavy rains fall from mid-July to September, and snow falls in the winter. Read the statements below to find out how people have adapted to these dry conditions. **Match each statement to the correct image at right.**

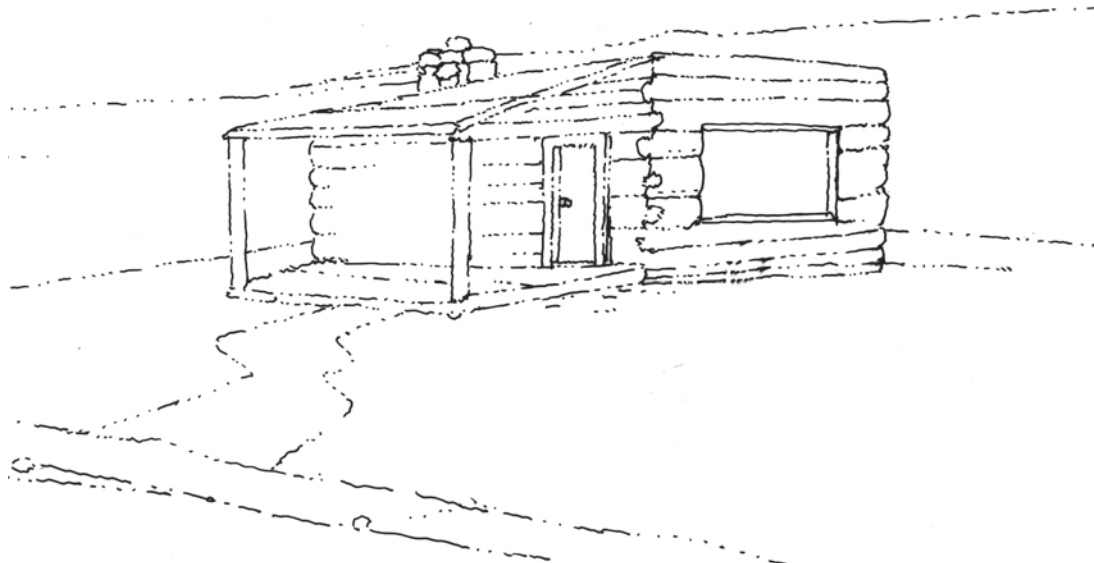
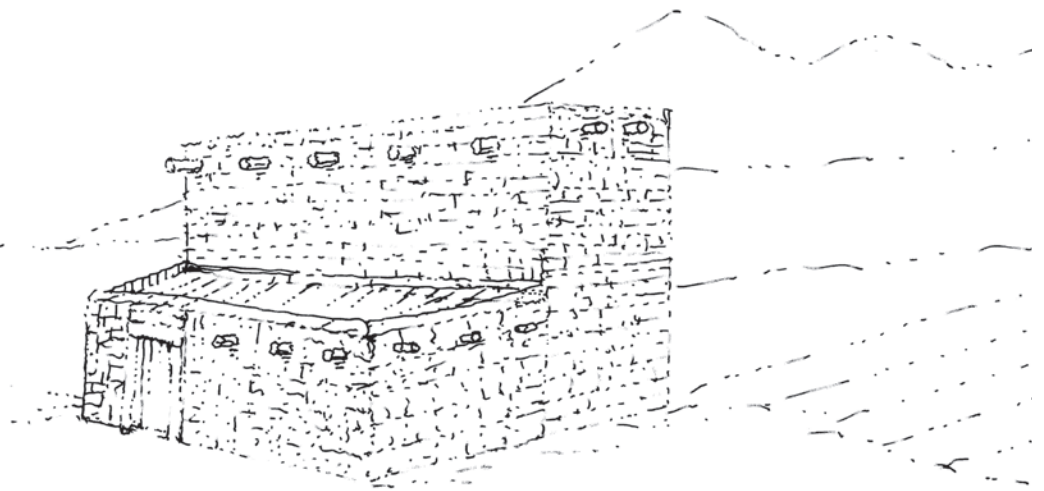


Picturing People

When you visit El Malpais and the surrounding mountains, you may see signs of past residents, such as an ancient Pueblo dwelling or an old homestead from the 1890s. What would these places have looked like in their time? We've drawn pictures of both places below. **Your job is to imagine what they may have looked like by adding some of the items we've listed below.**

Your turn! Now draw:

- a taller structure than the one that remains
- people planting corn
- different size pots
- a ladder to the roof
- kids and dogs
- what else do you think fits in?



Your turn! Now draw:

- the roof
- curtains in the windows
- kids at a corral with horses or cows
- a windmill and water bucket
- what else do you think fits in?



Indoor Scavenger Hunts

BLM Ranger Station

Located 9 miles south of Interstate 40 at Exit 89; (505) 280-2918.

1. What is the name of the largest sandstone formation in the area? What does the name mean in English?
2. Name a few items you would have seen inside a homesteader's house.
3. What different types of rocks can be found in this National Conservation Area? What might you find "in" the rocks?
4. Name five or more animals that live in this area.
5. What are some different kinds of maps you can look at in the ranger station?

1. _____
2. _____
3. _____
4. _____
5. _____

Northwest New Mexico Visitor Center

Located just southeast of Interstate 40 at Exit 85; (505) 876-2783.

1. What is the tallest mountain in this area? How tall is it? What kind of mountain is it?
2. Name three kinds of plants that grow in the lava.
3. What giant dinosaur's bone came from the Ojito Wilderness Study Area? Do you know what its name means?
4. Who were the "pastores"? Where did they live and what kinds of animals did they take care of?



1. _____
2. _____
3. _____
4. _____

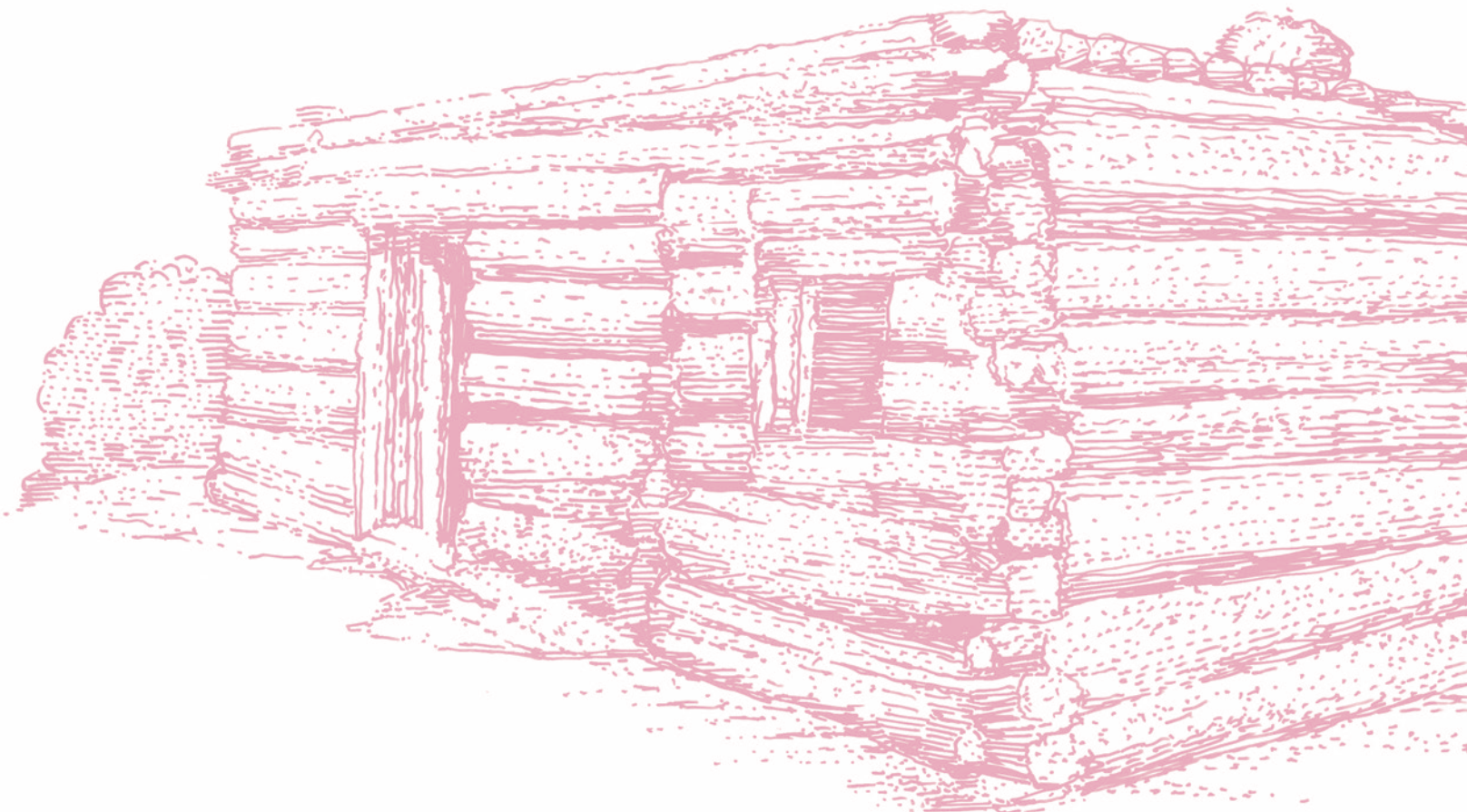
Take time to explore at least one of the visitor centers in the El Malpais region during your stay, then complete the corresponding Indoor Scavenger Hunt, using information from the exhibits.

El Malpais Information Center

Located 23 miles south of Interstate 40 at Exit 81; (505) 783-4774.

1. What are the five major lava flows in this region? (Hint: Look at the “Lava Flows of El Malpais” display.)
2. Which of these is the oldest lava flow? Which is the youngest?
3. What four kinds of volcanoes are found in the El Malpais flows?
4. This area is rich in diverse languages and cultures—Spanish, Acoma, Laguna, Navajo, Zuni, Asian, even Hawaiian! What is the Hawaiian name for landforms like Hole-In-The-Wall?

1. _____
2. _____
3. _____
4. _____



Listen Up, Down, and All Around!

First, close your eyes and count to ten. Lift a finger for every different sound you hear. After a couple of minutes, open your eyes and write down the sounds you heard. In the left column, write down the sounds made by humans or something humans have built (such as an airplane). In the right column, write down sounds from nature.

Try this listening activity to focus in on the varied sounds of El Malpais, especially those made by our feathered friends!



Which group of sounds was bigger?

Human-Made Sounds

Sounds from Nature

Did you hear AND see a bird?
Draw its picture here.

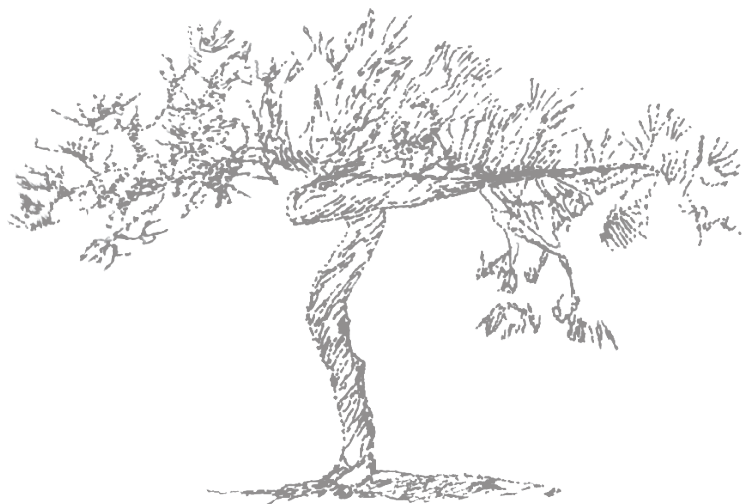
What did it sound like? _____

Hawks and eagles fly around El Malpais all year long. Did you hear or see any of them? _____

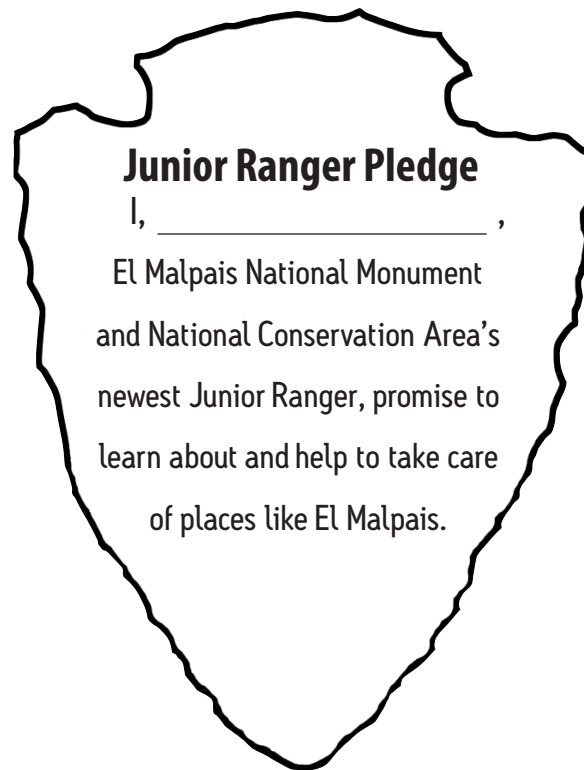
In the summer, you can see and hear hummingbirds at the BLM Ranger Station, phoebes and meadowlarks at the Northwest New Mexico Visitor Center, and bluebirds and phoebes at the El Malpais Information Center. Did you find any of these? Try looking some more! Draw a picture of your favorite bird here.

In Your Own Words

What was your favorite part of your visit to El Malpais? What was the most interesting thing that happened while you were here? Write a description or even a letter to a friend describing some of your adventures and discoveries.



El Malpais National Monument and National Conservation Area



Junior Ranger Pledge

I, _____,

El Malpais National Monument
and National Conservation Area's
newest Junior Ranger, promise to
learn about and help to take care
of places like El Malpais.

Written by Sara St. Antoine

Designed and illustrated by Jackson Boelts Design

Edited by Abby Mogollón

Special thanks to the staffs at El Malpais National Monument, El Malpais National Conservation Area, the Northwest New Mexico Visitor Center, and the Mount Taylor Ranger District of the Cibola National Forest for their care and direction with this project.

www.nps.gov/elma

Published by Western National Parks Association

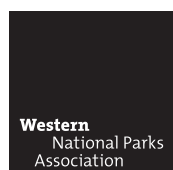
Copyright 2008 Western National Parks Association

This publication was produced with funds donated by Western National Parks Association and is intended for educational purposes only.

To learn more about WNPA please visit our website at www.wnpa.org.

Become a WebRanger

As a WebRanger, you'll learn what park rangers do to help protect our natural resources and our cultural heritage. You'll also learn how park rangers observe and discover new things about our national parks—things to share with visitors like you. Please visit www.nps.gov/webangers.



To learn more about WNPA
please visit our website
at wnpa.org.

